APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,278	07/22/2003	C. James MacLennan	MS1-3547US	7469

22801   7590   09/11/2008

LEE & HAYES PLLC
421 W RIVERSIDE AVENUE SUITE 500
SPOKANE, WA 99201

EXAMINER
LU, CHARLES EDWARD

ART UNIT	PAPER NUMBER
2161	

MAIL DATE	DELIVERY MODE
09/11/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>07 July 2008</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23, 25-28 and 30-35* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23, 25-28, 30-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1. This Action is in response to the Amendment dated 7/7/2008. Claims 1-23, 25-28, and 30-35 are pending and rejected.

Response to Amendments/Response to Arguments

2. The objections to the claims are withdrawn in view of the amendments to the claims.

3. Applicant's arguments regarding the prior art-based rejections have been fully considered. It is first noted that Applicants substantially argue the claims as amended (See Remarks, pp. 30-52). However, the prior art currently made of record still teaches or suggests the claimed subject matter as amended. The particular limitations will be fully addressed in the rejection(s) below, but in general, it is noted that the broadest reasonable interpretation in light of the specification has been applied to the claims, but limitations from the specification are not read into the claims.

For example, on at least p. 32 (middle) of the Remarks, Applicant argues that the prior art does not teach the limitation relating to "links." The examiner respectfully disagrees. The prior art teaches the links between mining model and mining structure, as claimed, because the prior art discusses back fitting a structure with a larger data set, which requires that a claimed "link" be stored to remember correspondence between the model and the structure and to update the values correctly (see Remarks, p. 33 top). It is also noted that statements of "intended use" that are present in the claims may raise a question as to the limiting effect of the claims. See MPEP 2106.

The new grounds of rejection presented below are necessitated by amendment.

The previous grounds of prior-art based rejection are withdrawn.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can

be found in a prior Office action.

4. Claims 1, 3-10, 12-19, 21-23, and 25-28 are rejected under 35 U.S.C.

103(a) as being unpatentable over Becker (U.S. Patent 6,301,579), hereinafter

"Becker," in view of Browning et al (U.S. Patent 5,903,302), hereinafter

"Browning."

As to claim 1, Becker teaches the following claimed subject matter:

Accessing one or more of a plurality of data sets, each data set storing data as

cases (e.g., mushrooms, census, col. 10, ll. 30, 67, fig. 18A-B, col. 28), each case

comprising a value in one or more of a plurality of variables, wherein the values

represent characteristics of a subject of the case and each type of the plurality of

variables corresponds to pre-determined data types (see above, fig. 18A-B, col. 28).

Retrieving data from a data set of the plurality of data sets (col. 10, ll. 29-44);

Performing operations on a chosen one or more of a plurality of mining structures

(e.g., for adult census, mushrooms, also see col. 10-13 and fig. 18A and col. 28), the

operations comprising:

Create, wherein the create operation sets up mining structures by creating one or

more mining structures using data retrieved from the data set (see fig. 17), wherein

each mining structure describes how the data will be modeled for data mining, the

creating comprising:

Defining one or more of a plurality of mining structure variables as the variables

from the data structure that will be used in the mining structure (col. 10, l. 44 – col. 11, l.

40).

Defining one or more of a plurality of acts of processing to be performed on the

retrieved data, wherein the one or more acts may be performed on a subset of the

retrieved data (see above and col. 29, ll. 16-48).

Process, wherein the process operation performs initial processing on the

retrieved data from the data set for mining model creation by performing processing on

the retrieved data, wherein processing occurs only on the subset of data determined

necessary per the definitions in the mining structure (see above, building a base level of

records, col. 11, l. 48);

Clear, wherein the clear operation removes data from a processed mining

structure (fig. 18A, col. 28, ll. 15-20);

Drop, wherein the drop operation deletes each chosen mining structure (see

above, fig. 18A, "Remove Column" also clears data and deletes each chosen mining

structure when, for example, all columns are removed).

Update, wherein the update operation causes the mining structure to be

reprocessed from the data set (fig. 18A, col. 28, ll. 1-15). Note that the mining structure

must be reprocessed from the data set so that the structure contains the correct

added/removed columns and/or filtered data.

Query, wherein the query operation returns the requested values from the mining structure (e.g., col. 22, l. 54). Note also that a query operation must be performed of lower level data (e.g., data file) to obtain data to create a higher level table in tables 1-3);

Storing results of operations performed on the data in the mining structure (see above, note that the results must be stored to build upper levels of a decision table classifier).

Ascertaining the existence of one or more mining structures (data files or training sets) available for mining model creation (this must happen in order to create a decision table classifier from the data file, see col. 11, ll. 46-50).

Based on the mining structures, creating a plurality of mining models (e.g., upper levels of decision table classifier), wherein each mining model is predictive of chosen characteristics based on the values obtained from mining structure variables (see col. 10-12) and the plurality of mining models includes a first mining model created from a first mining structure of the plurality of mining structures (one level of hierarchy of table 1-3 created from the base table for mushrooms) and a second mining model, different from the first mining model, created from the first mining structure (another different level of hierarchy of table 1-3 created from the base table for mushrooms, see section starting at col. 11, l. 41).

Providing results of the creation of the one or more mining models (table 1-3, see "iv. Example Visualization of a Decision Table Classifier," col. 15, l. 53).

Becker does not expressly teach a "key value."

However, Becker suggests for a data set, "a key value which uniquely identifies the corresponding case" (col. 33, ll. 18-20).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Becker, such that the data set is organized in record format with a key (uniquely identifying the record) and a value in one or more variables, since one of ordinary skill in the art would have been motivated to facilitate data organization for a data set.

Becker teaches mining structures and mining models, as discussed above, but does not expressly teach determining whether at least one mining structure is available for mining model creation, creating a plurality of mining models when at least one mining structure is available, and creating the plurality of mining models based on the data sets when the mining structure is not available.

However, Becker as applied above teaches that a mining model is created using a mining structure (see above). The "mining structure" is, for example, a data file that serves as a base level of records for the mining model (col. 11, ll. 46-50). Thus, the mining model could depend on whether the data file was created, and if the data file cannot be found, a mining model could not be created.

Browning teaches a function that detects a missing file, and if, for whatever reason, a file cannot be found, automatically recreating the file (col. 5, ll. 28-41).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Becker, such that a detection function of Browning would detect if the data file of Becker is missing, and if the file is missing, the

file will be recreated. As such, Becker would determine whether a structure is available for model creation, and if so, create the model(s), and if not, create the mining structure and proceed to create the models. Thus, the claim limitations would be met. The motivation would have been to facilitate smooth operation of the system (it is undesirable to act on a file that does not exist) and to ensure that the system possesses all the data necessary for successful operation, as known to one of ordinary skill in the art.

As to claims 3-5, Becker as applied above teaches when two mining structures created from the same data set are not equal with respect to their cases, and mining structure variables. See fig. 18A and various data manipulation tools available to create a different mining structure from the same data set (col. 28, ll. 1-30).

As to claim 6, Becker as applied above further teaches wherein links between the one or more of a plurality of mining models and the mining structure from which each mining model was created are stored, facilitating changes in one or more mining structures being simultaneously reflected in each of the one or more mining models created from each of the changed mining structures. Note that "a structure can be built from a small training set and then be back-fitted with a larger data set to improve the probability estimates" (col. 29, ll. 53-55). In order to accomplish this, a "link" between model and structure must be stored to remember the correspondence between the mining model and mining structure and to update the values correctly.

As to claim 7, Becker as applied above further teaches evaluating two or more mining structures created using data from the same data set by comparing to each

other at least one mining model created from each of the two or more mining structures, and providing the results of the comparison (col. 29, ll. 13-47). Note that in, e.g., holdout, an induced classifier, created from two thirds of the data, is compared with classified data, occurring from the remaining one-third of the same data. This is performed to determine the accuracy of the classifier. Thus, two or more underlying mining structures are evaluated as claimed.

As to claim 8, Becker as applied above further teaches providing two or more mining models created from the same mining structure for comparison (see above, col. 13, ll. 1-63, col. 7, ll. 60-65).

As to claim 9, Becker as applied above further teaches accepting a drill through query for specified data and providing said specified data (col. 9, ll. 49-53).

Claims 10 and 12-18 are rejected based on the same reasoning as the above claims.

Claim 19 is drawn to substantially the same subject matter as at least claims 1 and 6 discussed above, in addition to "wherein when a mining model creation function detects that no mining structure utilizing data from a desired data set is currently available, creating one or more mining models includes creating the mining structure." This limitation is understood as being similar to "if a necessary file is missing, create the file before continuing processing."

If the "function" is a programmed function, then Becker does not expressly teach the claimed subject matter (but see separate 103 rejection below)

However, Becker as applied above teaches that a mining model is created using a mining structure (see above). The mining structure is, for example, a data file that serves as a base level of records for the mining model (col. 11, ll. 46-50). Thus, the mining model could depend on whether the data file was created, and if the data file cannot be found, a mining model could not be created.

Browning teaches a function that detects a missing file, and if, for whatever reason, a file cannot be found, automatically recreating the file (col. 5, ll. 28-41).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Becker/Browning as applied above, such that a detection function of Browning would detect if the data file of Becker is missing, and if the file is missing, the file will be recreated. As such, Becker could continue processing the mining model (see above). This feature would meet the claimed limitations. The motivation would have been to facilitate smooth operation of the system (it is undesirable to act on a file that does not exist) and to ensure that the system possesses all the data necessary for successful operation, as known to one of ordinary skill in the art.

Claim 25 is rejected on the same basis as claim 19, discussed above, in addition to "facilitating changes relating to discretization of continuous variables…changed mining structures" which is further taught or suggested by Becker as applied above (see table, col. 11, ll. 1-20)

Claims 21-23 and 26-28 are rejected on the same basis as the above claims.

5. Claims 19, 21-23, 25-28, 30 and 32-35 are rejected under 35 U.S.C. 103(a)

as being unpatentable over Becker (U.S. Patent 6,301,579), hereinafter "Becker."

Claim 19 is drawn to substantially the same subject matter as one or more of the

claims discussed above, in addition to "wherein when a mining model creation function

detects that no mining structure utilizing data from a desired data set is currently

available, creating one or more mining models includes creating the mining structure."

Becker as applied above also teaches this feature, because on the first creation of a

data file from a data set, no data file is yet created from a data set, and thus, a user will

detect that no mining structure is currently available, and he will create the mining

structure and models (see fig. 18A or Becker). Note that a user is the "mining model

creation function." As the teachings and motivation from Browning above are not

needed here, Becker itself teaches or suggests all of the claimed subject matter (see

above limitations).

As to claim 21-23 and 25-28, Becker further teaches or suggests the claimed

subject matter (see above).

Claim 30 is drawn to substantially the same subject matter as one or more of the

claims discussed above, in addition to storing in system memory, which must happen in

order to function in a computer system, and "wherein said definitions indicate that a first

number of the one or more of the plurality of mining structures include continuous

variables of a particular data set discretized in a first manner and that a second number

of the one or more of the plurality of mining structures include the continuous variables

of the particular data set discretized in a second manner (see table, col. 11, ll. 1-20 of

Becker). As the teachings and motivation from Browning above are not needed here,

Becker itself teaches or suggests all of the claimed subject matter (see above

limitations).

Claims 32-35 are rejected based on the same reasoning as one or more of the

above discussed claims.

6. Claims 2, 11, and 20 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Becker in view of Browning, and further in view of Smith et al

(U.S. Patent 6,591,274), hereinafter "Smith."

As to claim 2, Becker/Browning as applied above teaches mining structures, but

does not expressly teach "serving as first class objects in a database."

However, Smith teaches serving as first class objects in a database (col. 4, ll. 5-

45).

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to modify Becker/Browning, such that the mining

structures serve as first class objects in a database. The motivation would have been to

facilitate accessing data from a data store, as taught by Smith (col. 1, l. 48 – col. 2, l.

20).

Claims 11 and 20 are drawn to substantially the same subject matter as claim 2

discussed above.

7. Claims 20 and 31 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Becker in view of Smith.

As to claim 20, Becker as applied above teach mining structures, but do not expressly teach "serving as first class objects in a database."

However, Smith teaches serving as first class objects in a database (col. 4, ll. 5-45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Becker, such that the mining structures serve as first class objects in a database. The motivation would have been to facilitate accessing data from a data store, as taught by Smith (col. 1, l. 48 – col. 2, l. 20).

Claim 31 is drawn to substantially the same subject matter as claim 20 discussed above.

Conclusion

8. Applicant's amendment necessitates new grounds of rejection. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles E. Lu whose telephone number is (571) 272-8594. The examiner can normally be reached on 8:30 - 5:00; M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Apu Mofiz can be reached at (571) 272-4080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

/Charles E Lu/
Examiner, Art Unit 2161
9/11/2008

/Apu M Mofiz/

Supervisory Patent Examiner, Art Unit 2161